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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,152	03/31/2004	Karl Brown	008325	9014
61285 7590 04/30/2008 JANAH & ASSOCIATES, P.C. 650 DELANCEY STREET, SUITE 106 SAN FRANCISCO, CA 94107			USA/AGS/SPARES/HMM	
			EXAMINER	
			THOMAS, LUCY M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/816,152	Applicant(s) BROWN ET AL.	
	Examiner Lucy Thomas	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/28/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1,6, 8-10, 13-14, 11-12, 20-21, and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15, 19-21, and 23 of copending Application No. 11/221,169. Although the conflicting claims are not identical, they are not patentably distinct from each other. Claim 1 of the instant application and 15 of co-pending application recite an electrostatic support or pedestal, and electrostatic chuck comprising dielectric/ceramic body or covering with embedded electrode, and having a surface to receive or support a substrate, a base plate comprising a composite of porous ceramic infiltrated with metal, and annular flange, extending beyond the periphery of the dielectric.

Claims 6, 8-10, 13-14 and 11-12, 20-21, and 17 of instant application and Claims 19-21, and 23 of the co-pending applications further limits the electrostatic chuck of Claim 1 with spring loaded heat transfer plate, and a pedestal having peripheral edges, and spiral fluid channels.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. (US 6,538,872). Regarding Claim 1, Wang discloses an electrostatic chuck 55 capable of attachment to a pedestal in a process chamber (see Figures 1-7), the chuck comprising:

(a) an electrostatic puck 100 comprising a ceramic body with an embedded electrode 105, the ceramic body having a substrate support surface 120 with an annular periphery; and

(b) a base plate 175, 190 below the electrostatic puck, the base plate having an annular flange extending beyond the periphery of the ceramic body (see flange of 175, 190 extending beyond 100 in Figure 1), the annular flange comprising a plurality of holes 315 (see Figure 6) to allow connectors 320 (see Figure 6) to pass therethrough,

and wherein the base plate comprises a composite of a porous ceramic infiltrated with metal (see Abstract, Column 5, lines 32-33, Column 7, lines 10-24).

Regarding Claim 4, Wang discloses that the ceramic material comprises silicon carbide and the metal comprises aluminum (see Column 6, lines 2-5).

Regarding Claim 5, Wang discloses the volume percentage of aluminum in the composite is from about 20% to about 80% (see Column 6, lines 2-5).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-10, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weldon (US 6, 108, 189) in view of Wang et al. (US 6, 538,).

Regarding Claim 6, Weldon discloses an electrostatic chuck (see Figure 2) capable of exhibiting reduced thermal expansion mismatch in a process chamber (see Column 2, lines 5-10, Column 3, lines 27-30), the chuck comprising: (a) an electrostatic puck 100 comprising a ceramic body with an embedded electrode 110, the ceramic body having a substrate support surface 170 and an annular periphery;

(b) a base plate 105 below the electrostatic puck, comprising a plurality of holes, and (c) a support pedestal (see structure below 105 in Figure 2) having a housing and an annular ledge, the annular ledge extending outwardly from the housing, wherein the

annular ledge is capable of being attached to the annular flange of the base plate by the connectors (Column 12, lines 37-60).

Weldon does not disclose an annular flange extending beyond the annular periphery of the ceramic body, the plurality of holes are on the flange and are shaped and sized to allow connectors to pass therethrough, and that the base plate comprises a composite ceramic material comprising pores that are at least partially infiltrated with a metal.

Wang discloses an electrostatic chuck 55 capable of exhibiting reduced thermal expansion mismatch in a process chamber (see Figures 1-7), the chuck comprising:

(a) an electrostatic puck 100 comprising a ceramic body with an embedded electrode 105, the ceramic body having a substrate support surface 120 and an annular periphery;

(b) a base plate 175 below the electrostatic puck, the base plate having an annular flange extending beyond the annular periphery of the ceramic body, the annular flange comprising a plurality of holes 315 (Figure 6) that are shaped and sized to allow connectors 320 (Figure 6) to pass therethrough, wherein the base plate comprises a composite comprising a ceramic material comprising pores that are at least partially infiltrated with a metal (see Abstract, Column 5, lines 32-33, Column 7, lines 10-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrostatic chuck of Weldon, and to provide a base plate as taught by Wang for high temperature operation of the chuck without excessive thermal or mechanical degradation (see Wang, Column 2, lines 29-32).

Regarding Claim 7, Wang discloses that the ceramic material comprises silicon carbide and the metal comprises aluminum (see Column 6, lines 2-5).

Regarding Claim 8, Weldon discloses a heat transfer plate 105 below the base plate, the heat transfer plate having a heat transfer fluid channel 90 (see Figure 2) embedded therein.

Regarding Claims 9-10, Weldon discloses that the heat transfer plate comprises an upper portion comprising a first material made of copper and a lower portion comprising a second material made of steel, and the heat transfer fluid channel 90 being embedded therebetween (see Column 23, lines 52-59, Column 24, lines 39-50).

Regarding Claims 14-15, Weldon discloses a thermally conductive layer between the heat transfer plate and base plate (Column 8, lines 1-14).

Regarding Claim 16, Weldon discloses a substrate processing chamber 50 comprising the electrostatic chuck and further comprising a gas supply 60 to provide a process gas in the chamber, a gas energizer 70 to energize the gas, and an exhaust 65 to exhaust the gas.

Regarding Claim 18, Wang discloses the volume percentage of aluminum in the composite is from about 20% to about 80% (see Column 6, lines 2-5).

7. Claims 11-12, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weldon (US 6, 108, 189) in view of Wang et al. (US 6, 538,872) and Cole et al. (US 6,700, 099). Claim 11 recites the combined limitations of Claims 6 and 8, and further limiting the heat transfer fluid channel comprising first and second spiral channels, the first spiral channel being adapted to provide a flow of fluid therethrough

that is substantially opposite a flow of fluid through the second spiral channel. Weldon and Wang do not disclose the spiral heat transfer channels. Cole discloses an electrostatic chuck having heat transfer fluid channels comprising spiral channels, the first spiral channel being adapted to provide a flow of fluid therethrough that is substantially opposite a flow of fluid through the second spiral channel (see Figure 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Weldon and Wang and to provide spiral channels as taught by Cole to provide efficient and uniform heat transfer to ensure highly accurate and uniform temperature setting and wafer testing (see Cole, Column 5, lines 50-55).

Regarding Claim 12, Cole discloses the first and second spiral channels encircle a center of the plate 10, 3 times. Claims 20-21 basically recites the elements of Claims 14-15, except that the electrostatic chuck of Claim 11 is recited. Therefore, please see the rejections for Claims 14-15 above. 7.

8. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weldon (US 6, 108, 189) in view of Wang et al. (US 6, 538, 872) and Flanigan et al. (US 6,081,414). Regarding Claim 13, Weldon and Wang do not disclose a spring assembly to apply pressure to the heat transfer plate. Flanigan a spring assembly 234 (see Figure 2, Column 2, lines 52-62) to apply pressure to a heat transfer plate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Weldon and Wang, and to provide a spring assembly as taught by Flanigan for better heat transfer.

Claim 17 basically recites the combined limitations of Claims 6, 8, and 13, except that the plurality of holes of the annular flange is not recited. Therefore, please see the rejections for Claims 6, 8, and 13 recited above.

Response to Arguments

9. Applicant's arguments filed on 1/28/2008 have been fully considered.

Applicant's arguments regarding Claim 1 are rendered moot in view of new grounds of rejection.

Regarding Applicant's arguments toward Weldon and Wand references:

The Applicant states that Wang reference does not teach an electrostatic chuck comprising a composite base plate with an annular flange (see flange of 175, 190 extending beyond 100 in Figure 1) comprising a plurality of holes to allow connectors therethrough. In Figure 1, Wang teaches the base plate 175, 190 with an annular flange which extends beyond the periphery of the ceramic body 100, and the annular flange comprising a plurality of holes 315 (see Figure 6) to allow connectors 320 (see Figure 6) to pass therethrough. It is noted that Wang, not Weldon, is relied upon for the teaching of the base plate that comprises a composite of a ceramic material comprising pores that are at least partially filled by a metal (see Abstract, Column 5, lines 32-33, Column 7, lines 10-24).

Examiner agrees with Applicant's statement that forming connector holes that extend through a composite structure can be difficult task when the composite material comprises a brittle ceramic material that fracture during machining of such holes. Wang teaches the above and provides solution for the problem: the connector holes 315 of the

base of Wang are located in a composite material (the support part 190 of base plate 175, 190 is recited as comprising a ceramic and metal, see Column 10, lines 63-67, also see, Column 12, lines 5-13).

Regarding Applicant's arguments toward Cole reference: Cole reference is relied upon solely for the teaching of a first and second heat fluid spiral channels, which is not taught by Weldon and Wang references, and the motivation: to provide efficient and uniform heat transfer to ensure highly accurate and uniform temperature setting and wafer testing (see Cole, Column 5, lines 50-55).

Regarding Applicant's arguments toward Flanigan reference: Flanigan reference is relied upon solely for the teaching of a spring assembly 234 (see Figure 2, Column 2, lines 52-62) to apply pressure to the heat transfer plate, which is not taught by Weldon and Wang, and the motivation for such a spring assembly, for better heat transfer.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836

/LT/
April 26, 2008

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